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EXAMINER	
LOVEL, KIMBERLY M	
ART UNIT	**PAPER NUMBER**
2167	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/705,772	ATZMONY ET AL.	
	Examiner	Art Unit	
	Kimberly Lovel	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 November 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to the Amendment filed 17 November 2006.

2. Claims 1-16 are pending in this application. Claims 1, 5, 9 and 13 are independent. In the Amendment filed 17 November 2006, claims 1, 5, 9 and 13 have been amended. This action is made Final.

3. The rejections of claims 1-2, 5-6, 9-10 and 13-14 as being anticipated by US Patent No 6,363,385 to Kedem et al and claims 3-4, 7-8, 11-12 and 15-16 as being unpatentable over US Patent No 6,363,385 to Kedem et al in view of US Patent No 6,757,797 to Kaiya et al have been withdrawn as necessitated by amendment. However, the Kedem and Kaiya references were still utilized to reject the amended claims.

Priority

4. This application repeats a substantial portion of prior Application No. 09/342,608 now US Patent No. 6,363,385, filed 29 June 1999; and Application No. 10/073708 now US Patent No. 7,031,966, filed 11 February 2002, and adds and claims additional disclosure not presented in the prior application. Since this application names an inventor (Hana Moreshet) or inventors named in the prior application, it may constitute a continuation-in-part of the prior application. Should applicant desire to obtain the benefit of the filing date of the prior application, attention is directed to 35 U.S.C. 120 and 37 CFR 1.78.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-4 and 9-12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of US application No. 10/601,359, claims 1-28 of US application number 10/073,708 and claims 1-28 of US Patent No. 6,363,385. Claims of US Patent No. 7,099,875, US Patent No 7,031,966 and US Patent No. 6,363,385 contain elements of claims 1-4 and 9-12 of the instant application.

The independent claims have been amended to include the limitations of addresses of the source and destination devices, an operation data element and an operation status element. It would have been obvious to one of ordinary skill at the time of the invention to add theses elements to the header of US Patent No. 6,363,385. One would have been motivated to do so since the header of US Patent No. 6,363,385 can include information not shown US Patent No. 6,363,385 (see column 4, lines 59-61).

Claim Objections

7. The objections to **claims 1 and 2** (as pointed by the applicant, the examiner meant to recite claim 5 instead of 2) are withdrawn as necessitated by amendment.

8. **Claims 1 and 5** objected to because of the following informalities:

Claim 1 recites the limitation "the status" in line 19. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "the status" in line 23. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "designation the status" in line 23. It is suggested that “designation” be changed to “designating.”

Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Amended independent claims 1, 5, 9 and 13 recite a first command and a second command. The specification fails to explicitly define a command which is considered to represent the first command and a command which is considered to represent the second command.

To allow for compact prosecution, the examiner will apply prior art to these claims as best understood, with the assumption that the applicant will amend to over come the stated 112 rejections.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-2, 5-6, 9-10 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No 6,363,385 to Kedem et al (hereafter Kedem et al).

Referring to claim 1, Kedem et al disclose in a data processing system for connection in an open system network including a data storage facility [data storage facility 24] and a host device [host device] (see column 3, lines 25-26) for generating commands during the processing of a host application [Host App A 22 or Host App B 23] including a first command [copy command] with arguments identifying a source logical device and a destination logical device and a second command (see abstract), wherein the data storage facility includes a host controller [controller 86] for receiving the commands, device controllers associated with each of said source [controller 87] and destination [controller 88] logical devices and means for interconnecting said controllers [system bus 25] (see Fig 1), a method for responding to the first and second commands comprising the steps in sequence of:

A) establishing, in response to the first command [copy command], in the data storage facility an operating environment by generating a data structure [extents track structure and data structure] (see column 4, lines 12-20, Fig 3 and Fig 4) including the addresses of the source and destination logical devices [source device number, destination device number, record number of starting extent, record number of ending extent, cylinder address of destination device, head identifier of destination device] (see Fig 4), an operation data element for identifying the establishment and an operation status element designating the status of said establishment step and data about each storage location in the source and destination logical devices (see column 8, lines 4-58),

B) making the source and destination logical devices available for use by host applications (see column 4, lines 21-34),

C) initiating, in response to the second command [a message is sent to the host application indicating that the copying has occurred] and in response to the operation data and status elements indicating that the establishment has been completed, an ordered copying of data from the source logical device to the destination logical device including updating the operation data and status elements to indicate that copying is in progress (see column 2, lines 35-52 and column 4, lines 35-38) and, for each storage location in the source logical device:

i) copying the data from each storage location in the identified source logical device to the identified destination logical device (see column 6, lines 13-19 – the tracks are considered to represent the *storage locations*), and

ii) updating the data for each storage device to indicate the completion of each transfer from a storage location (see column 6, lines 26-27 – modification is considered to represent *updating*),

and

D) upon completion of said copying, updating the operation status element to indicate that the copying has been completed (see column 2, lines 51-52).

Referring to claim 2, Kedem et al disclose a method as recited in claim 1 additionally comprising the step of deleting the operating environment after said copying has been completed for all the data in the source logical device (see column 5, lines 62-

65 and column 6, lines 26-27 – after the copying is completed, the environment is terminated).

Referring to claim 5, Kedem et al disclose in a data processing system for connection in an open system network including a data storage facility [data storage facility 24] and a host device [host device] for generating commands during the processing of a host application [Host App A 22 or Host App B 23] including a first command to establish an operating environment for copying and a second command to copy the data from a source logical device comprising a plurality of contiguous data tracks on a physical disk storage device to a block of contiguous data tracks in a destination logical device wherein said source and logical device are components of the data storage facility that additionally includes a host controller [controller 86] for receiving the commands and a device controller associated with each of said source [controller 87] and destination [controller 88] logical devices (see abstract and Fig 1), a method for responding to the first and second commands comprising the steps in sequence of:

A) establishing, in the data storage facility and in response to the first command [copy command], an operating environment by identifying, generating, in response to arguments in the first command, initial locations for the source and destination logical devices [source device number, destination device number, record number of starting extent, record number of ending extent, cylinder address of destination device, head identifier of destination device] (see column 4, lines 12-20 and Fig 4), an operation data element for identifying the establishment and an operation status element designation

the status of said establishment step and data about each storage location in the source and destination logical devices (see column 8, lines 4-58),

B) making the data in the source and destination logical devices available for use by host applications (see column 4, lines 21-34),

C) initiating, in response to the second command [a message is sent to the host application indicating that the copying has occurred] when the operation data and status elements indicate that the establishment has been completed, an ordered copying of the data from the source logical device to the destination logical device on a track-by-track basis including, and for each data track in the source logical device (see column 2, lines 35-52; column 4, lines 35-38; and column 6, lines 13-19):

i) copying the data a data track in the source logical device to a corresponding data track in the destination logical device (see column 6, lines 13-19), and

ii) updating the data for each storage device to indicate the completion of each transfer from the source logical device (see column 6, lines 26-27 – modification is considered to represent *updating*),

and

D) upon completion of said copying, updating the operation of data and status elements to indicate that the copying has been completed (see column 2, lines 51-52).

Referring to claim 6, Kedem et al disclose a method as recited in claim 5 additionally comprising the step of deleting the operating environment after said copying has been completed for all the data tracks in the source logical device (see column 5,

lines 62-65 and column 6, lines 26-27 – after the copying is completed, the environment is terminated).

Referring to claim 9, Kedem et al disclose a data storage facility [data storage facility 24] that connects to a host device [host device] (see column 3, lines 25-26) that generates commands during the processing of host applications [Host App A 22 or Host App B 23] wherein said data storage facility is adapted for copying data from a source logical device to a destination logical device in response to a predetermined first and second commands from a host application identifying said source and destination logical devices (see abstract) and wherein said data storage facility includes a host controller [controller 86] for receiving the commands and a device controller [controller 87 and 88] for each logical device, said facility comprising:

A) means responsive to the first predetermined command for establishing an operating environment by identifying said source and destination logical devices (see column 4, lines 12-20 – the copy command is considered to represent the *command*), said means including a copy data structure [extents track structure and data structure] (see column 4, lines 12-20, Fig 3 and Fig 4) that identifies the source and operation and operation status data elements that collectively identify an operating phase and state thereof as an establishment phase in progress and means for indicating the status of the copying in each source and destination logical devices (see column 5, line 59 – column 6, line 36 and column 8, lines 4-58),

B) means for enabling interaction of other commands with said source and destination logical devices (see column 4, lines 21-34), and

C) copy means, responsive to the second predetermined command [a message is sent to the host application indicating that the copying has occurred] when said operation and operation status data elements indicate the establishment phase is complete for initiating the copying the data from said source logical device to said destination logical device in an ordered manner (see column 4, lines 35-38) and updating the operating phase to indicate that copying is in progress (see column 2, lines 35-52 and column 4, lines 35-38),

D) means responsive to said copying means for updating the copying status to indicate data that has been transferred by said copying means (see column 6, lines 26-27 – modification is considered to represent *updating*), and

E) means for updating the operating status to indicate the copying has been completed (see column 2, lines 51-52).

Referring to claim 10, Kedem et al disclose a data storage facility as recited in claim 9 additionally comprising means for deleting the operating environment after said copying means has been completed copying all the data in said source logical device (see column 5, lines 62-65 and column 6, lines 26-27 – after the copying is completed, the environment is terminated).

Referring to claim 13, Kedem et al disclose a data storage facility including logical storage devices, a first controller for receiving commands from a host and a device controller associated with each logical device, said data storage facility being adapted for connection in an open system network wherein the host device is adapted to generate a first command for establishing an operating environment for copying and

a second command for initiating the copying of data, said first command including arguments identifying source and destination logical devices wherein each said logical device stores data in contiguous data tracks (see abstract and Fig 1), said facility comprising:

A) establishment means in the data storage facility responsive to the first command [copy command] for establishing an operating environment by generating initial locations [source device number, destination device number, record number of starting extent, record number of ending extent, cylinder address of destination device, head identifier of destination device] for said source and destination logical devices (see column 4, lines 12-20, Fig 3 and Fig 4),

B) means for enabling interaction of other commands with said source and destination logical devices (see column 4, lines 21-34), and

C) copying means for initiating, in response to the second command [a message is sent to the host application indicating that the copying has occurred] when the operation data and status elements indicate the establishment phase has been completed, an ordered copying the data from said source logical device to said destination logical device in a track-by-track, manner (see column 2, lines 35-52; column 4, lines 35-38; and column 6, lines 13-19),

D) updating means responsive to said copying means for updating the data about each data track during each transfer of data in a data track (see column 6, lines 26-27 – modification is considered to represent *updating*), and

E) means responsive to the completion of the copying for updating the operating data and status elements to indicate the completed state of the copying (see column 2, lines 51-52).

Referring to claim 14, Kedem et al disclose A data storage facility as recited in claim 13 additionally comprising means for deleting the operating environment after said copying means has been completed copying all the data in said source logical device (see column 5, lines 62-65 and column 6, lines 26-27 – after the copying is completed, the environment is terminated).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 3-4, 7-8, 11-12 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No 6,363,385 to Kedem et al as applied to claim 1 above, and further in view of US Patent No 6,757,797 to Kaiya et al (hereafter Kaiya et al).

Referring to claim 3, Kedem et al disclose a host application. However, Kedem et al fails to explicitly teach the further limitations wherein the host application generates as one command a write wherein during said copying request to transfer data from the host application an identified storage location in the source logical device, said method including the steps of: i) interrupting said ordered copying in response to the request, ii) copying data existing in the identified storage location in the source logical device to a corresponding storage location in the destination logical device, iii) re-enabling said ordered copying upon completion of said data copying, and iv) completing the data transfer to the identified storage location in the source logical device in response to the write request. Kaiya et al disclose a copying method between logical disks, including a host application generates as one command a write wherein during said copying request to transfer data from the host application an identified storage location in the source logical device (see column 7, lines 26-32), said method including the steps of:

i) interrupting said ordered copying in response to the request (see column 7, lines 33-37),

ii) copying data existing in the identified storage location in the source logical device to a corresponding storage location in the destination logical device (see column 7, lines 26-32),

iii) re-enabling said ordered copying upon completion of said data copying (see column 8, lines 11-28), and

iv) completing the data transfer to the identified storage location in the source logical device in response to the write request (see column 8, lines 25-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Kaiya et al for interrupting the copying of data with the method of Kedem for transferring data. One would have been motivated to do so in order to decrease work stop time when copying data (Kaiya et al: see column 1, lines 35-41).

Referring to claim 4, Kedem et al disclose a host application. However, Kedem et al fails to explicitly teach the further limitations wherein during said copying a host application generates as one command one of read and write requests to transfer data between the host application and an identified storage location in the destination logical device, said method including the steps of: i) interrupting said ordered copying in response to the request, ii) copying data to the identified storage location in the destination logical device from a corresponding storage location in the source logical device, iii) re-enabling said ordered copying upon completion of said data copying, and iv) completing the transfer between the host application and the identified storage location in the destination logical device. Kaiya et al disclose a copying method between logical disks, including wherein during said copying a host application generates as one command one of read and write requests to transfer data between the host application and an identified storage location in the

destination logical device (see abstract, column 7, lines 26-32; and column 7, lines 56-59), said method including the steps of:

i) interrupting said ordered copying in response to the request (see column 7, lines 33-37),

ii) copying data to the identified storage location in the destination logical device from a corresponding storage location in the source logical device (see column 7, lines 26-32),

iii) re-enabling said ordered copying upon completion of said data copying (see column 8, lines 11-28), and

iv) completing the transfer between the host application and the identified storage location in the destination logical device (see column 8, lines 25-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Kaiya et al for interrupting the copying of data with the method of Kedem for transferring data. One would have been motivated to do so in order to decrease work stop time when copying data (Kaiya et al: see column 1, lines 35-41).

Referring to claim 7, Kedem et al disclose a host application. However, Kedem et al fail to explicitly teach the further limitations wherein during said ordered copying a host application generates as another command a write request to transfer data to at least a portion of an identified data storage track in the source logical device, said method including the steps of: i) interrupting said ordered copying in response to the write request, ii) copying data existing in the identified data track in the source logical

device to a corresponding track in the destination logical device, iii) re-enabling said ordered copying upon completion of said data copying, and iv) completing the transfer of data associated with the write request to the identified data track in the source logical device. Kaiya et al disclose a copying method between logical disks (see abstract), including wherein during said ordered copying a host application generates as another command a write request to transfer data to at least a portion of an identified data storage track in the source logical device (see abstract and column 7, lines 26-32), said method including the steps of: i) interrupting said ordered copying in response to the write request (see column 7, lines 33-37), ii) copying data existing in the identified data track in the source logical device to a corresponding track in the destination logical device (see column 7, lines 26-32), iii) re-enabling said ordered copying upon completion of said data copying (see column 8, lines 11-28), and iv) completing the transfer of data associated with the write request to the identified data track in the source logical device (see column 8, lines 25-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Kaiya et al for interrupting the copying of data with the method of Kedem for transferring data. One would have been motivated to do so in order to decrease work stop time when copying data (Kaiya et al: see column 1, lines 35-41).

Referring to claim 8, Kedem et al disclose a host application. However, Kedem et al fail to explicitly teach the further limitations wherein during said ordered copying a host application generates as one command one of read and write requests to transfer

data between the host application and at least a portion of an identified track in the destination logical device, said method including the steps of: i) interrupting said ordered copying in response to the request, ii) copying data to the identified data track in the destination storage location from a corresponding data track in the source logical device, iii) re-enabling said ordered copying upon completion of said data copying, and iv) completing the transfer between the host application and the identified data track in the destination logical device. Kaiya et al disclose a copying method between logical disks (see abstract), including wherein during said ordered copying a host application generates as one command one of read and write requests to transfer data between the host application and at least a portion of an identified track in the destination logical device (see abstract, column 7, lines 26-32; and column 7, lines 56-59), said method including the steps of: i) interrupting said ordered copying in response to the request (see column 7, lines 33-37), ii) copying data to the identified data track in the destination storage location from a corresponding data track in the source logical device (see column 7, lines 26-32), iii) re-enabling said ordered copying upon completion of said data copying (see column 8, lines 11-28), and iv) completing the transfer between the host application and the identified data track in the destination logical device (see column 8, lines 25-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Kaiya et al for interrupting the copying of data with the method of Kedem for transferring data. One would have been motivated

to do so in order to decrease work stop time when copying data (Kaiya et al: see column 1, lines 35-41).

Referring to claim 11, Kedem et al disclose a host application. However, Kedem et al fail to explicitly teach the further limitations wherein during the ordered copying a host application generates as another command a write request to transfer data from the host application to identified storage location in said source logical device, said copying means including: i) a copy program, ii) means for operating said copy program in the ordered copying mode, iii) means for interrupting said ordered copying operating means in response to any read and write request to a storage location in said destination logical device to enable said copy program to copy data from a corresponding storage location in said source logical device to the identified storage location in the destination logical device, iv) means for re-enabling said ordered copying upon completion of said data copying, and v) means for completing the data transfer to said identified storage location in said source logical device in response to the write request. Kaiya et al disclose a copying method between logical disks (see abstract), including wherein during the ordered copying a host application generates as another command a write request to transfer data from the host application to identified storage location in said source logical device (see abstract), said copying means including: i) a copy program (see abstract), ii) means for operating said copy program in the ordered copying mode (see column 4, lines 35-38), iii) means for interrupting said ordered copying operating means in response to any read and write request to a storage location in said destination logical device to enable said copy program to copy data from

a corresponding storage location in said source logical device to the identified storage location in the destination logical device (see column 7, lines 33-37 and lines 56-59), iv) means for re-enabling said ordered copying upon completion of said data copying (see column 8, lines 1-28), and v) means for completing the data transfer to said identified storage location in said source logical device in response to the write request (see column 8, lines 25-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Kaiya et al for interrupting the copying of data with the method of Kedem for transferring data. One would have been motivated to do so in order to decrease work stop time when copying data (Kaiya et al: see column 1, lines 35-41).

Referring to claim 12, Kedem et al disclose a host application. However, Kedem et al fail to explicitly teach the further limitations wherein during said ordered copying a host application generates as one command one of read and write requests to transfer data between the host application and an identified location said destination logical device, said ordered copying means including: i) a copy program, ii) means for operating said copy program in the ordered copying mode, iii) means for interrupting said ordered copying operating means in response to any read and write request to a storage location in said destination logical device to enable said copy program to copy data from a corresponding storage location in said source logical device to the identified storage location in the destination logical device, iv) means for re-enabling said ordered copying operating means upon completion of said data copying, and v) means for

completing the transfer between host application and said identified storage location in said destination logical device. Kaiya et al disclose a copying method between logical disks (see abstract), including wherein during the ordered copying a host application generates as one command of read and write requests to transfer data between the host application an identified location in said destination (see abstract), said ordered copying means including: i) a copy program (see abstract), ii) means for operating said copy program in the ordered copying mode (see column 4, lines 35-38), iii) means for interrupting said ordered copying operating means in response to any read and write request to a storage location in said destination logical device to enable said copy program to copy data from a corresponding storage location in said source logical device to the identified storage location in the destination logical device (see column 7, lines 33-37 and lines 56-59), iv) means for re-enabling said ordered copying operating means upon completion of said data copying (see column 8, lines 1--28), and v) means for completing the transfer between the host application and said identified storage location in said destination logical device (see column 8, lines 25-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Kaiya et al for interrupting the copying of data with the method of Kedem for transferring data. One would have been motivated to do so in order to decrease work stop time when copying data (Kaiya et al: see column 1, lines 35-41).

Referring to claim 15, Kedem et al disclose a host application. However, Kedem et al fail to explicitly teach the further limitations wherein during said ordered

copying a host application generates as one command a write request to transfer data from the host application to an identified data track in said source logical device, said copying means including: i) a copy program, ii) means for operating said copy program in the ordered, track-by-track manner, iii) means for interrupting said ordered copying operating means in response to the write request and enabling said copy program to copy data in said identified data track in said source logical device to a corresponding data track in said destination logical device, iv) means for re-enabling said ordered copying upon completion of said data copying, and v) means for completing the transfer of data associated with the write request to said identified data track in said source logical device. Kaiya et al disclose a copying method between logical disks (see abstract), including wherein during said ordered copying a host application generates as one command a write request to transfer data from the host application to identified data track in said source logical device (see abstract), said copying means including: i) a copy program (see abstract), ii) means for operating said copy program in the ordered track-by-track manner (see column 4, lines 35-38), iii) means for interrupting said ordered copying operating means in response to the write request and enabling said copy program to copy data in said identified data track in said source logical device to a corresponding data track in said destination logical device (see column 7, lines 33-37 and lines 56-59), iv) means for re-enabling said ordered copying upon completion of said data copying (see column 8, lines 1-28), and v) means for completing the transfer of data associated with the write request to said identified data track in said source logical device (see column 8, lines 25-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Kaiya et al for interrupting the copying of data with the method of Kedem for transferring data. One would have been motivated to do so in order to decrease work stop time when copying data (Kaiya et al: see column 1, lines 35-41).

Referring to claim 16, Kedem et al disclose a host application. However, Kedem et al fail to explicitly teach the further limitations wherein during said ordered copying a host application generates as another command one of read and write requests to transfer data between the host application and an identified data track in said destination logical device, said ordered copying means including: i) a copy program, ii) means for operating said copy program in the ordered, track-by-track, manner, iii) means for interrupting said ordered copying in response to one of the read and write requests to a data track in said destination logical device thereby to enable said copy program to copy the data in said corresponding data track of said source logical device to said identified data track in said destination logical device, iv) means for re-enabling said ordered copying upon completion of said data copying, and v) means for completing the transfer between the host application and said identified data track in said destination logical device, and vi) means for completing the transfer between the host application and the identified destination storage location. Kaiya et al disclose a copying method between logical disks (see abstract), including wherein during the ordered copying a host application generates as another command one of read and write requests to transfer data between the host application an identified data

track in said destination (see abstract), said ordered copying means including: i) a copy program (see abstract), ii) means for operating said copy program in the ordered track-by-track, manner (see column 4, lines 35-38), iii) means for interrupting said ordered copying in response to one of the read and write requests to a data track in said destination logical device thereby to enable said copy program to copy data in said corresponding data track of said source logical device to said identified data track in said destination logical device (see column 7, lines 33-37 and lines 56-59), iv) means for re-enabling said ordered copying operating means upon completion of said data copying (see column 8, lines 1--28), v) means for completing the transfer between the host application and said identified data track in said destination logical device (see column 8, lines 25-28), and vi) means for completing the transfer between the host application and the identified destination storage location (see column 8, lines 25-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Kaiya et al for interrupting the copying of data with the method of Kedem for transferring data. One would have been motivated to do so in order to decrease work stop time when copying data (Kaiya et al: see column 1, lines 35-41).

Response to Arguments

15. In regards to applicants' arguments on pages 20-21 referring to the double patenting rejection of the claims, applicants state: Applicant believes, however, that the claims, as amended define an invention that is distinct from U.S. Patent 6,363,385.

As necessitated by the amendment, the Statutory Double Patenting rejection has been changed to an Obvious-type Double Patenting rejection.

16. In regards to applicants' arguments on pages 21-22 referring to the prior art rejection of claims 1, 2, 5, 6, 9, 10, 13 and 14, applicants state: Each of the Independent claims 1, 4, 9 and 13 defines a method or apparatus in which a copying operation is carried out in response to the receipt of a first command and a second command. Kedem discloses a method and apparatus that responds to a single command.

The examiner respectfully disagrees for the reasons shown in the rejected amended claims.

Also, the applicants argue that the data structure does not contain anything corresponding to the data and status elements.

The examiner respectfully disagrees for the reasons shown in the rejected amended claims.

Also, the applicants argue that each of independent claims 1, 4, 9 and 13 defines a method and apparatus in which the copying can not occur until such time as the second command is received and the establishment phase has been completed, as determined by the content of the operation data and status elements. Kedem neither discloses nor suggests such a test.

The examiner respectfully disagrees for the reasons shown in the rejected amended claims.

17. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case: It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Kaiya et al for interrupting the copying of data with the method of Kedem for transferring data. One would have been motivated to do so in order to decrease work stop time when copying data (Kaiya et al: see column 1, lines 35-41).

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent No 7,099,875 titled "Method and Apparatus for Making Independent Data Copies in a Data Processing System" to Kedem et al
- US Patent No 7,039,659 titled "Method and Apparatus for Making Differential Independent Data Copies in a Data Processing System" to LeCrone et al
- US Patent No 7,031,966 titled "Method and Apparatus for Making Independent Data Copies in a Data Processing System" to Kedem et al
- US Patent No 6,718,437 titled "Method and Apparatus for Reconfiguring Stripped Logical Devices in a Disk Array Storage" to Don et al
- US Patent No 6,546,457 titled "Method and Apparatus for Reconfiguring Stripped Logical Devices in a Disk Array Storage" to Don et al

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Lovel whose telephone number is (571) 272-2750. The examiner can normally be reached on 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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1 February 2007
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